2 **Hay SI**, Guerra CA, Tatem AJ, *et al*. The global distribution and population at risk of malaria: past, present, and future. *Lancet Infect Dis* 2004;**4**(6):327–36.
3 **WHO**. *WHO expert committee on malaria*, WHO technical report series 892. Geneva: World Health Organization, 2000.
4 **Guerin PJ**, Olliaro P, Nosten F, *et al*. Malaria: current status of control, diagnosis, treatment, and a proposed agenda for research and development. *Lancet Infect Dis* 2002;**2**(9):564–73.
5 **Hoffman SL**, Miller LH. Perspectives on malaria vaccine development. In: Hoffman SL, ed. *Malaria vaccine development:a multi-immune response approach*. Washington: American Society for Microbiology, 1996:1–13.
6 **Bonn D**. Filling the vaccine gap. *Lancet Infect Dis* 2005;**5**(1):7.
7 **Gupta S**, Snow RW, Donnelly CA, *et al*. Immunity to non-cerebral severe malaria is acquired after one or two infections. *Nat Med* 1999;**5**(3):340–3.
8 **Webster D**, Hill AV. Progress with new malaria vaccines. *Bull World Health Organ* 2003;**81**(12):902–9.
9 **Raghunath D**. Malaria vaccine: are we anywhere close? *J Postgrad Med* 2004;**50**(1):51–4.
10 **Cohen S**, McGregor IA, Carrington S. Gamma-globulin and acquired immunity to human malaria. *Nature* 1961;**192**:733–7.
11 **Sabchareon A**, Burnouf T, Ouattara D, *et al*. Parasitologic and clinical human response to immunoglobulin administration in falciparum malaria. *Am J Trop Med Hyg* 1991;**45**(3):297–308.
12 **Ballou WR**, Arevalo-Herrera M, Carucci D, *et al*. Update on the clinical development of candidate malaria vaccines. *Am J Trop Med Hyg* 2004;**71**(Suppl 2):239–47.
13 **Rieckmann KH**, Beaudoin RL, Cassells JS, *et al*. Use of attenuated sporozoites in the immunization of human volunteers against falciparum malaria. *Bull World Health Organ* 1979;**57**(Suppl 1):261–5.
14 **Hoffman SL**, Goh LM, Luke TC, *et al*. Protection of humans against malaria by immunization with radiation-attenuated Plasmodium falciparum sporozoites. *J Infect Dis* 2002;**185**(8):1155–64.
15 **Mueller AK**, Labaied M, Kappe SH, *et al*. Genetically modified Plasmodium parasites as a protective experimental malaria vaccine. *Nature* 2005;**433**(7022):164–7.
16 **Alonso PL**, Sacarlal J, Aponte JJ, *et al*. Efficacy of the RTS,S/AS02A vaccine against Plasmodium falciparum infection and disease in young African children: randomised controlled trial. *Lancet* 2004;**364**(9443):1411–20.
17 **Alonso PL**, Smith T, Schellenberg JR, *et al*. Randomised trial of efficacy of SPf66 vaccine against Plasmodium falciparum malaria in children in southern Tanzania. *Lancet* 1994;**344**(8931):1175–81.
18 **Girard MP**, Reed ZH, Friede M, *et al*. A review of human vaccine research and development: malaria. *Vaccine* 2007;**25**(9):1567–80.
19 **Doolan DL**, Martinez-Alier N. Immune response to pre-erythrocytic stages of malaria parasites. *Curr Mol Med* 2006;**6**(2):169–85.
20 **Yazdani SS**, Mukherjee P, Chauhan VS, *et al*. Immune responses to asexual blood-stages of malaria parasites. *Curr Mol Med* 2006;**6**(2):187–203.
21 **Moorthy VS**, Good MF, Hill AV. Malaria vaccine developments. *Lancet* 2004;**363**(9403):150–6.
22 **Van de Perre P**, Dedet JP. Vaccine efficacy: winning a battle (not war) against malaria. *Lancet* 2004;**364**(9443):1380–3.
23 **Greenwood BM**. What can be expected from malaria vaccines? *Ann Trop Med Parasitol* 1997;**91**(Suppl 1):S9–S13.
24 **Greenwood B**, Marsh K, Snow R. Why do some African children develop severe malaria? *Parasitol Today* 1991;**7**(10):277–81.
25 **Gardner MJ**, Hall N, Fung E, *et al*. Genome sequence of the human malaria parasite Plasmodium falciparum. *Nature* 2002;**419**(6906):498–511.
26 **Graves P**, Gelband H. Vaccines for preventing malaria. *Cochrane Database Syst Rev* 2003;(1):CD000129.
27 **Alonso PL**, Sacarlal J, Aponte JJ, *et al*. Duration of protection with RTS,S/AS02A malaria vaccine in prevention of Plasmodium falciparum disease in Mozambican children: single-blind extended follow-up of a randomised controlled trial. *Lancet* 2005;**366**(9502):2012–8.
28 **Dubovsky F**, Rabinovich R. Malaria vaccines. In: Plotkin SA, Orenstein WA, eds. *Vaccines*. Philadelphia: Saunders, 2004:1282–9.
29 **Stoute JA**, Slaoui M, Heppner DG, *et al*. A preliminary evaluation of a recombinant circumsporozoite protein vaccine against Plasmodium falciparum malaria. RTS,S Malaria Vaccine Evaluation Group. *N Engl J Med* 1997;**336**(2):86–91.
30 **Stoute JA**, Gombe J, Withers MR, *et al*. Phase 1 randomized double-blind safety and immunogenicity trial of Plasmodium falciparum malaria merozoite surface protein FMP1 vaccine, adjuvanted with AS02A, in adults in western Kenya. *Vaccine* 2007;**25**(1):176–84.
31 **Malkin EM**, Diemert DJ, McArthur JH, *et al*. Phase 1 clinical trial of apical membrane antigen 1: an asexual blood-stage vaccine for Plasmodium falciparum malaria. *Infect Immun* 2005;**73**(6):3677–85.
32 **Malkin EM**, Durbin AP, Diemert DJ, *et al*. Phase 1 vaccine trial of Pvs25H: a transmission blocking vaccine for Plasmodium vivax malaria. *Vaccine* 2005;**23**(24):3131–8.
33 **Smith JD**, Deitsch KW. Pregnancy-associated malaria and the prospects for syndrome-specific antimalaria vaccines. *J Exp Med* 2004;**200**(9):1093–7.
34 **Schofield L**, Hewitt MC, Evans K, *et al*. Synthetic GPI as a candidate anti-toxic vaccine in a model of malaria. *Nature* 2002;**418**(6899):785–9.
35 **Moree M**, Ewart S. Policy challenges in malaria vaccine introduction. *Am J Trop Med Hyg* 2004;**71**(Suppl 2):248–52.

Adoption

Intercountry adoption

Mary Mather

More research is needed on the long-term outcomes of children adopted from other countries

Celebrity adoption was one of the media sensations of 2006, the year every British newspaper suddenly had an opinion about intercountry adoption. What some praised as the altruistic rescue of a child from poverty and early death, others criticised as an adult-driven, largely commercial transaction. Few editorials considered the consequences for the child growing up in a ''rainbow family'' far from home or the plight of those children for whom rescue was not an option.

Unlike newspaper editors, paediatricians instinctively support policies that are in the best interests of children. However, forming an opinion about intercountry adoption can be an ethical minefield. While adopters are often driven by humanitarian motives, the children they crave are potentially very saleable items in unscrupulous hands. Few would wish to insult the good intentions of adoptive parents. However, it would be naive to deny that corruption and criminality can exploit the desperation of parents caring for children they can ill afford and the yearnings of those with none.

In a perfect world without war and gross inequities in living conditions, intercountry adoption would not exist. To leave the country of one's birth and culture is to undertake an uncertain and hazardous journey which, given a free choice, few would attempt. For a child, this is also a risky and disempowering process. The decision to move is normally made for a child rather than by the child. Children move from the familiar to the different and from fitting in to standing out. While the change is often from poverty to relative wealth, wealth alone cannot guarantee a better life.

THE DEMOGRAPHICS OF INTERCOUNTRY ADOPTION

Intercountry adoption started in North America primarily as a philanthropic response to the devastation following World War II and initially involved children moving from orphanages in Europe to North America.[1] As a more global phenomenon, it has grown rapidly since 1990 when the world first discovered Romanian orphans. In affluent societies, increasing demands for children, particularly babies, coupled with a marked decrease in domestic adoption has fuelled this growth. The internet has also increased public awareness about the availability and unmet needs of children in developing nations from where the vast majority of adoptions now originate.

Although accurate, up-to-date statistics are extremely difficult to obtain, intercountry adoption probably represents the

silent global movement of about 30 000 children per year moving between 100 different countries. In 1998, the main receiving countries for children were the USA, France, Italy, Canada, Sweden, Switzerland and the Netherlands. The main countries of origin were Russia, China, Korea, Guatemala and Vietnam.[2] In the USA, the number of visas issued to ''orphans'' doubled in 10 years from 9102 (1988) to 16 396 (1998). In France, there was a 50% increase in 10 years from 2441 (1988) to 3777 (1998).[2]

In England and Wales, the numbers involved are small. Official data collection only started in 1993 and government statistics are based on the number of approved intercountry adopter applications not the number of children brought into the country. Countries with less than five applications are not counted. In 2006, there were 270 intercountry adoptions (367 in 2005).[3] Anecdotal evidence suggests applicants tend to live in London and the Home Counties, a distribution probably reflecting the substantial costs of adopting abroad. In 1998, the intercountry adoption rate in the UK per 1000 live births was only 0.4 compared with Norway (11.2), Sweden (10.8), Denmark (9.9) and the USA (4.2).[2]

THE HAGUE CONVENTION (1993)

Alongside this growth in intercountry adoption, the international community has made very significant attempts to control the process. The underpinning ethical principles were first introduced in Article 21 of 1989 UN Convention on the Rights of the Child.[4] The detailed implementation was left to The Hague Convention in 1993 agreed in the aftermath of the Romanian crisis.[5]

The Hague principles seek to put the best interests of children first. Contracting states must ensue that the abduction, sale and trafficking of children is prevented. Children must be protected against the risks of illegal, irregular and ill-prepared adoptions abroad. The child must have been freely given up for adoption. No financial inducements of any kind can be made. Efforts must have been made to place the child in a family in their home country. The receiving state must confirm that the adopted child will be given permanent residence and that potential parents have been comprehensively assessed as suitable adopters. Each convention state must appoint a non-profit making central adoption authority.[5]

At the time of writing, 67 countries, including most of the major receiving countries, have ratified or acceded to the Convention including the UK (on 1 June 2003). More problematically, most of the states of origin from which children are being adopted have either not accepted the Hague principles or are at a very early stage of implementation.

Children from convention countries are considered legally adopted on their arrival in the UK and automatically receive British citizenship. Children adopted from non-convention countries need to be re-adopted in a UK court before the adoption is legally recognised. It is only this second group of children who are subject to a local authority monitoring process and who will have medical examinations as a prerequisite of their British adoption.[6–8]

THE REALITY OF ADOPTING ABROAD

There are no published data although anecdotal evidence suggests that British intercountry adopters are articulate and well educated. Many have lived and worked in their chosen country. Most act upon humanitarian motives. Others mistakenly believe that adopting abroad involves less bureaucracy or that it will be easier to adopt a very young child. In the past, they have struggled against unspoken prejudice and even outright professional hostility with few local authorities providing help or post-adoption support. They have also had to manage frustratingly long delays in both countries supported only by the voluntary sector or other adopters.

This situation changed on 1 June 2003, when the UK Adoption (Intercountry Aspects) Act 1999 came into force. Now regardless of the country involved or their relationship to the child, anyone wishing to adopt a child overseas must undergo the same procedure as domestic adopters. Before travelling abroad to meet a child, all adopters must be formally approved by their local adoption panel. Once the child is back in the UK, adopters can now request post-adoption support.[6–8]

Unlike domestic adoption however, adopters are still expected to become experts in the adoption practices of the chosen country, make all initial enquiries, identify a child and pay the full costs. In terms of potential health risks, adopters are advised to obtain comprehensive, local, public health information, although this information is frequently unobtainable or unreliable. Although it is now illegal to pay the birth parents or any intermediary, third party payments for genuine expenses must be met. Social services currently charge between £4000 and £5000 for the pre-adoption home study and when travel, accommodation and legal expenses are included, the minimum cost is at least £10 000 ($19 500, €15 000). The whole process can take up to 3 years.

DOES ANY OF THIS MATTER TO PAEDIATRICIANS?

A newly arrived, clean, well-dressed child can easily mislead, particularly when the examining doctor is a paediatrician or family practitioner with little experience of either domestic or intercountry adoption. Yet the child could have medical problems that are rare or unknown in the developed world. American research indicates that 81% of these problems are only detected by screening and are missed by physical examination.[9]

Tropical infections, severe malnutrition, prolonged institutionalisation and exposure to heavy metals have long-term consequences. Family histories are unknown in abandoned children. Prenatal drug or alcohol misuse, obstetric complications or positive tests for blood borne viruses can be deliberately concealed. Physical examinations can miss developmental delay. Neonatal screening tests and immunisations may be incomplete. Medical reports need to be translated and interpretation is often compounded by differences in medical culture.[10]

One American study looked at 452 Chinese children (443 girls) adopted in 2000. Of these, 75% had developmental delay, 39% had growth retardation, 13% were anaemic, 10% had abnormal thyroid function, 28%, had hepatitis B, 9% had intestinal parasites and 3.5% tested positive for tuberculosis.[11] One of the few British studies looked at 35 children adopted into Hampshire. Medical reports were available in 63%, but most were poorly completed with little information; 69% had required treatment abroad for infectious diseases, failure to thrive, anaemia or rickets. One child had an untreated hemiplegia diagnosed as a ''problem with one leg''. Screening tests found hepatitis B, abnormal haemoglobin and a chronic salmonella carrier.[12]

In the USA, where specialised intercountry adoption clinics have existed for over a decade, there is a nationally recommended schedule of screening tests for all children.[13 14] The schedule includes screening for anaemia, haemoglobinopathies, HIV, syphilis, hepatitis, TB, parasites, hypothyroidism, rickets and lead. All children have their vision and hearing tested and a developmental assessment. Immunisations given in orphanages are repeated. This comprehensive medical screening is rare in the UK where the total responsibility for securing health is placed on the adopters. This position is unacceptable and leaves children at risk.

The British Association for Adoption and Fostering (BAAF) has now issued guidance adapted from American recommendations.[15 16] The regularly updated

UNICEF website with individual country health statistics is another useful tool.[17]

THE ROMANIAN EXPERIENCE

Adoption in Romania illustrates both the best and worst aspects of intercountry adoption and has led to the most comprehensive British study on outcomes of early deprivation. Since 1990, 30 000 Romanian children have been adopted abroad, 1200 within Britain.[18] The English and Romanian Adoptees Study Team (ERA) followed up 165 of these children, adopted before 42 months, comparing them with 52 non-deprived UK adoptees placed before 6 months.

The Romanian children had been confined to their cots in impersonal unsanitary institutions with insufficient food and no opportunities for play.[19] Although initially 50% were malnourished and 60% were severely developmentally delayed, by the age of 4 most had caught up with their British counterparts.[20] However, further studies at the ages of 6 and 11 showed that severe institutional privation was particularly associated with attachment disorders, inattention/over-activity and quasi-autistic behaviours. There were no discernable effects if the institutionalisation occurred before the age of 6 months. Thereafter, the marked adverse effects persisted at the age of 11 for many of the children who were over 6 months on arrival.[21 22]

Although there is marked heterogeneity in the outcomes, it seems that after the first critical 6 months of life, severe deprivation can lead to long-term psychological impairment. It is also clear that the effects are neither universal nor fixed and there is no significant ''dose–response'' relationship between the duration of deprivation and the outcome. Profound deprivation is also compatible with normal psychological functioning. One fifth of the children who had spent the longest time in institutions showed normal functioning. The behavioural outcomes were unaffected by the quality of the adoptive home.[21 22]

Today Romania is making strenuous efforts to rehabilitate children and 170 orphanages have closed. Spending on antenatal care and family planning has increased. Foster families and volunteers have been recruited to work with abandoned children. The government has spent heavily on public education to stamp out the idea that children are a saleable commodity, a viewpoint encouraged by the vast sums made from child trafficking in the 1990s.

In 2005, Romania banned international adoptions. Government officials claim that the ban has helped them to concentrate on proper substitute childcare. Opponents claim it is denying children the chance of a family. Powerful American adoption agencies, backed by Italy and France, continue to lobby hard for a repeal. However, the European Union strongly supported the adoption ban and even insisted on continuing childcare reform as a condition of Romania's bid for EU membership.[18]

THE LONG-TERM OUTCOMES

Growing up is challenging for children from stable backgrounds. Intercountry adopted children have had a sharply defined historical, geographical and social break in their life histories. They grow up looking different from their parents, family and friends. Unlike immigrants, they do not grow up in bilingual households in contact with their extended family and culture. Whether this has damaging long-term effects on identity and self-esteem is an unresolved issue.

Many adoptees are now reaching adolescence in Western Europe and the USA. Research studies, which are almost exclusively Scandinavian, Dutch and American, into the mental health and social adjustment of these young adults have produced conflicting results. Some suggested that substantial numbers became increasingly maladjusted as they grew older, with higher than average rates of suicide and mental health problems,[23 24] while others suggested a more favourable outcome.[25] An overview of the Scandinavian experience concluded that although 75% were managing well, 25% of adolescents were experiencing problems linked to learning, identity and ethnicity.[26] American research suggests that the best outcomes are found in a nurturing environment, where a willingness to acknowledge physical differences, openness about the child's origins and help in dealing with the potential conflict of cultures exists.[27]

SO WHAT IS ALL THE FUSS ABOUT?

Intercountry adoption is not going to stop. The number of children involved is increasing. Intercountry adoption must therefore be a service driven by the needs of children. It is not the solution to child abandonment. It does not empty orphanages nor address child poverty in developing countries. It rescues one child but many are left behind. Driven by a powerful demand for babies, it is unlikely to provide families for older children, sibling groups, special needs or disabled children. Only governments can permanently change the lives of all a nation's children by prioritising maternal and child welfare.

All children have the right to be cared for by their parents within the traditions of their family and land of birth. Any alternative should be considered a last resort. Children are a nation's most precious resource and few countries should want to let them go easily. All governments could do more to ensure that they have a firm control over intercountry adoption and practice it with integrity.

Globally, there is a pressing need for basic data and further research into outcomes. Virtually nothing is known about the fate of the children adopted into the UK. Very little international attention has been paid to the plight of birth parents or siblings left behind. British paediatricians and child psychiatrists need to become more knowledgeable about the unique health and psychological problems of intercountry adoption. Above all, more research is needed on the long-term outcomes for children who have grown up far from home and their issues of identity, culture, belonging and loss. Children transplanted from one culture to another deserve to have their chances of rejection reduced to a minimum.

Arch Dis Child 2007;**92**:479–482.
doi: 10.1136/adc.2005.086322

Correspondence to: Dr Mary Mather, Bexley Care Trust, 221 Erith Road, Bexleyheath, Kent DA7 6HZ, UK; marymather@bexley.nhs.uk

Accepted 5 February 2007

Competing interests: None.

REFERENCES

1 **Altstein H**, Simon J. *Intercountry adoption: a multinational perspective*. New York: Praeger, 1991.
2 **Selman P**. The demographic history of intercountry adoption. In: Selman P, ed. *Intercountry adoption: developments, trends and perspectives*. London: British Agencies for Adoption and Fostering, 2000:15–35.
3 **Department for Education and Skills**. Intercountry adoption. www.dfes.gov.uk/intercountryadoption/ (accessed 15 March 2007).
4 **Office of the United Nations, High Commission for Human Rights**. *Convention on the Rights of the Child*. Geneva: High Commission for Human Rights, 1990.
5 **Hague Conference on Private International Law**. Articles 1, 4, 26. In: *Hague Convention on Protection of Children and Co-operation in Respect of Intercountry Adoption*. Permanent Bureau, Hague Conference on Private International Law, Proceedings of the Seventeenth Session. Tome 11 1993. A full and up-to-date list of ratifying and acceding states is available on www.hcch.net (accessed 15 March 2007).
6 *The Adoption (Intercountry Aspects) Act, 1999*. London: Stationery Office, 1999.
7 *The Adoptions with a Foreign Element Regulations, 2005*. London: Stationery Office, 2005.
8 **Department of Health**. *Intercountry adoption guide: practice and procedures*. London: Department of Health, 2001.
9 **Hostetter MK**, Iverson S, Thomas W, *et al*. Medical evaluation of internationally adopted children. *N Engl J Med* 1991;**325**(7):479–85.
10 **Mather M**, Kerac M. Caring for the health of children brought into the UK from abroad. *Adoption & Fostering* 2002;**26**(4):44–54.

11 **Miller LC**, Hendrie NW. Health of children adopted from China. *Paediatrics* 2000;**105**(6):e76.
12 **Harnott C**, Robertson R. Intercountry adoption. Implications for adoption agencies and medical advisers. *Adoption & Fostering* 1999;**23**(4):26–34.
13 **Borchers D**. Medical testing recommended for international adoptees. www.fwcc.org/pediatricexam.html (last revised 2000) (accessed 15 March 2007).
14 **American Academy of Pediatrics**. *Medical evaluation of internationally adopted children for infectious diseases. Red book*. Elk Grove Village, IL: AAP, 2000:148–52.
15 **British Association for Adoption and Fostering**. *Health screening of children adopted from abroad*, Practice note 46. London: BAAF, 2004.
16 **British Association for Adoption and Fostering**. *Intercountry adoption and guidance*, Advice note. London: BAAF, 2004.
17 **UNICEF**. Information by country. http://www.unicef.org/infobycountry/index.html (accessed 15 March 2007).
18 **The Times**. *Children first*, Leading article. London, 18 December 2006. http://www.timesonline.co.uk/tol/comment/leading_article/article757003.ece (accessed 15 March 2007).
19 **Kaler SR**, Freeman BJ. Analysis of environmental, deprivation, cognitive and social development in Romanian orphans. *J Child Psychol Psychiatry* 1994;**35**:769–81.
20 **Rutter M**. Developmental catch-up and deficit, following adoption after severe early privation. English and Romanian Adoptees (ERA) Study Team. *J Child Psychol Psychiatry* 1998;**39**:465–76.
21 **Rutter ML**, Kreppner JM, O'Connor TG. Specificity and heterogeneity in children's responses to profound institutional privation. *Br J Psychiatry* 2001;**179**:97–103.
22 **Beckett C**, Maughan B, Rutter M. Do the effects of early severe deprivation on cognition persist into adolescence? Findings from the English and Romanian Adoptees Study. *Child Dev* 2006;**77**:696–711.
23 **Verhulst FC**. The development of internationally adopted children. In: Selman P, ed. *Intercountry adoption: developments, trends and perspectives*. London: British Agencies for Adoption and Fostering, 2000:126–42.
24 **Hjern A**, Lindblad F, Vinnerljung B. Suicide, psychiatric illness, and social maladjustment in intercountry adoptees in Sweden: a cohort study. *Lancet* 2002;**360**(9331):443–8.
25 **Irhammar M**, Cederblad M. Outcomes of intercountry adoption in Sweden. In: Selman P, ed. *Intercountry adoption: developments, trends and perspectives*. London: British Agencies for Adoption and Fostering, 2000:143–63.
26 **Dalen M**. *The status of knowledge of foreign adoptions: a summary of the results of key foreign-adoption research projects in Scandinavia*. Oslo: Department of Special Needs Education, University of Oslo, 1999.
27 **Silverman AR**, Feigelman W. Adjustment in interracial adoptees - an overview. In: Brodzinsky DM, Schechter MD, eds. *The psychology of adoption*. New York: Oxford University Press, 1990:187–200.